DOCUMENT RESUME

ED 322 865 HE 023 820

AUTHOR Summerville, Richard M.; Ridley, Dennis R.
TITLE Toward Establishing Salary Benchmarks for College and University Administrators.
PUB DATE 15 May 90
NOTE 26p.; Paper presented at the Annual Forum of the Association for Institutional Research (Louisville, KY, May 15, 1990).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Administrators; *College Administration; College Faculty; *Comparative Analysis; *Educational Equity (Finance); Higher Education; *Mathematical Formulas; Public Colleges; *Salaries; Statistical Analysis
IDENTIFIERS *Virginia

ABSTRACT

To determine where given Virginia institutions of higher education stand in the aggregate regarding administrators' salaries among similar institutions, salary information provided by chief academic officers of eight senior public-supported institutions in Virginia for their administrative faculty was compared with data from other United States colleges and universities designated as "peers." Using conventions already being applied in Virginia to instructional faculty salaries, a methodology was developed which resulted in an easily analyzed and interpreted set of data to determine equity on the institution-wide level. The formula determines whether the aggregate appropriation for the Virginia institutions' positions is sufficient to support each of the positions at a given percentile of the salary amounts for corresponding positions at peer group institutions. Interpretation of the data found that appropriation amounts placed Virginia administrators between the 38th and 75th percentiles of corresponding positions at peer institutions. Includes one reference. (JDD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED322865

Toward Establishing Salary Benchmarks For College and University Administrators[1]

Richard M. Summerville

Dennis R. Ridley

Christopher Newport College

HE 023 820

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

DENNIS R. RIDLEY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

ABSTRACT

Salary information provided by chief academic officers of eight senior public-supported institutions in Virginia for their administrative faculty was used to compare each of these institutions with groups of colleges and universities designated as "peers" by the State Council of Higher Education. A methodology was developed to answer the question, "Where does each Virginia institution stand in the aggregate as regards administrators' salaries among institutions which have been selected for their similarity to the Virginia institution?" The peer group system was developed to bring aggregate instructional faculty salaries to the 60th percentile of their peers, but was not originally intended for applications to average administrator salaries. However, results from applying the methodology developed here offer a reasonable source for documenting how aggregate administrator salaries are faring as against a similar institutional frame of reference. Other applications of this study are also discussed.

Background

In 1984 the General Assembly of Virginia expressed concerns with the system then in place for determining faculty salary average benchmarks. A major concern was that the system was too simple; its basic components included level and number of degrees awarded and the amount of federal research funding. In order to create a new system that would more accurately reflect the characteristics of individual institutions in Virginia, the following mandate was made part of the Appropriation Act of 1984-86:

"It shall be the policy of the Commonwealth to establish faculty salary averages for the senior state-supported colleges and universities by comparison with faculty salary averages of similar institutions of higher education nationally. As part of its review of the allocation model for higher education operating budgets, the Council [State Council of Higher Education] shall evaluate and revise the existing system for comparing faculty salary averages, to provide individual faculty salary benchmarks for all state-supported institutions of higher education. The revision should include provision for the differing academic disciplines taught by the institutions, shall provide increased differentiation among Virginia institutions based upon their characteristics, and shall reflect the regional and national patterns of faculty recruiting for each institution."

Considerable analysis and experimentation led the Council, in consultation with institutional representatives, to adopt a two-stage system which has been in use ever since, with refinements for each biennium. The first stage incorporates a large number of quantifiable variables and takes into account institution-specific variables relating to discipline, research effort, enrollment size and other variables. The S.A.S. clustering procedure called FASTCLUS (S.A.S., 1985) is used to determine a comparable cluster of 50 or more institutions with reference to the given Virginia institution, arranged in increasing order of dissimilarity to the target.[2] The second stage involves negotiation between representatives from State Council staff and representatives of the institution. If the representatives agree to accept the designated number (25 in most cases) of those institutions most statistically similar to the target (counting the Virginia institution which is of course perfectly similar to itself), then that list becomes the institutions's peer group. In the more representative situation some negotiation takes place in which either the institution or the Council may present compelling reasons for the non-inclusion of one or more of the first 25 institutions on the list. The group so constituted is designated as the group of peers. Average faculty salaries within each peer group are then used to establish target levels for the average faculty salary at each Virginia institution.

However, if agreement is reached to delete one of the first 25 institutions in the cluster, then that institution is replaced by adding the 26th-ranking institution in the cluster. If agreement is reached to

delete a second institution, it is replaced by the one of 27th rank. This process continues until a list of 25 mutually-agreeable institutions results.

Using this system, Virginia has made considerable strides on behalf of instructional faculty while essentially realizing the General Assembly's objective of attaining and maintaining the 60th percentile for each Virginia institution within its peer group. The national scope of the peer groups' compositions accounts for Virginia's success in moving well beyond salary averages in its region for each of the major categories of institutions (Doctoral I, II, and III; Masters I and II, Baccalaureate, etc.).

However, little attention appears to have been paid to the consequences of this success internally within institutions in which another category of professionals, i.e. academically-credentialed administrators[3], have not necessarily reaped similar benefits. To be precise, no methodology has heretofore been developed that permits the aggregate institutional salaries of such administrators at a Virginia institution to be compared to those of similar institutions with comparable profiles of administrators. To illustrate, in one particular institution in Virginia, in 1986-87 the average administrator salary was 117.1 percent of the average instructor salary. As a result of instructional faculty receiving much larger aggregate salary increases than administrators for several years in a row, the percent changed by 1990-91 to 107.8 percent. Since the modal contract length for administrators is 12 months versus only 9 months for instructors, the

case above is actually this: by 1990-91 the average administrative salary was only 80.9 percent of the average instructional salary on a per-month basis. Thus, the potential for comparative inequities arising from the peer group system for instructors, when a comparable system is not employed for administrators, appears obvious.

That these and related issues were more than isolated concerns became obvious in formal discussions among the group of chief academic officers of the fifteen senior state-supported institutions in Virginia. This group, constituting an advisory committee to the State Council of Higher Education, formally commissioned a study to be conducted of these issues. This study was required to go beyond gross system-wide comparisons between college and university administrators in Virginia and their counterparts elsewhere in the nation. Such statewide data were reviewed, and they seemingly put Virginia in a favorable comparative light; but such comparisons did not bear scrutiny primarily because they did not reveal meaningful distinctions between institutions. The required data needed to be <u>institution-specific</u>, as was the instructional faculty benchmark system. Furthermore, the required study needed to risk challenging the assumption and practice of setting uniform state-wide percentage increases in appropriations for both classified (non-professional) and administrative positions. Lacking a demonstration to the contrary, some members of the advisory group argued that a context-free, system-wide equivalency of positions, such as might apply to classified personnel, would not serve to describe administrative

personnel and their positions. Accordingly, the above-mentioned advisory committee of chief academic officers commissioned such a study.

Rationale

What would a "comparable system for administrators" involve? Such a system would require a defensible method for making equitable refinements in average administrative salary levels to adjust for benchmark-driven changes in average instructional faculty salaries. A first essential characteristic of these refinements would be that a comprehensive administrative salary database should be used in order to make comparisons on average administrator salaries between the given Virginia institution and its peers--i.e. the same, or as many as possible of the same, group of peers that was established by the benchmark peer group system for instructional faculty salary adjustments. The most comprehensive such database is that generated by the College and University Personnel Association (C.U.P.A.) from its annual Administrative Compensation Survey. Approximately one-half of the institutions of higher education in the United States are represented in this database.

A second necessary characteristic is that the institutions to be compared with the given institution should be compared only in terms of an equivalent or nearly equivalent set of administrative positions. While it is reasonable, given the variables used to establish the peer group, to assume comparability in the aggregate for instructional faculty positions, this is not the case for administrators. First, disciplinary equivalency has virtually no bearing on equivalency of administrative

positions; secondly, differences in administrative organization between otherwise similar institutions often translate into more or less administrators at the dean and director level or higher, thus affecting the average salary level.

A third highly desirable characteristic would be that the study should provide a convenient statistical summary for the aggregate status of administrators at a given institution relative to the peer group. This would be analogous to the percentile used as both a target level and as an indicator of interim progress, in terms of average instructional faculty salaries, for given Virginia institutions relative to their peer groups.

The procedure to be described below meets these three requirements. The outcomes generated are intended to be essentially illustrative of how the procedure works rather than informative as regards the system-wide status of administrative salaries. As suggested above, a system-wide perspective was reviewed earlier and determined not to be the most desirable characteristic.

Data Sources

The data used to illustrate the methodology originated from two sources: (1) the database for the 1988-89 C.U.P.A. Administrative Compensation Survey; and (2) comparable salary information provided by the chief academic officers of eight senior public-supported institutions of Virginia using C.U.P.A. summary position descriptions.

From C.U.P.A. 15 special studies were ordered, one for each of the senior public institutions in Virginia. Each separate study provided

data meeting the following requirements: The study first selected for each C.U.P.A. position defined on the survey those positions for which at least five of the institution's peers who participated in the survey responded with salary data for that position.[4] These data were simply the average annual salary figures for the persons (if more than one) who occupied a position with that description. If there was only one occupant (as in the great majority of cases), the figure was simply that person's annual salary.

Eight chief academic officers or their designees responded to the request for data. To assure comparability of these data to that provided by C.U.P.A., each C.A.O. was sent a blank facsimile of the 1988-89 C.U.P.A. survey with accompanying instructions. These instructions asked for: (a) 1988-89 annual salaries for each relevant position (or the average salary if there was more than one position occupant) for all administrative and professional faculty (as defined in Footnote 3) as of fall, 1988; and (b) frequencies for each position. The respondents were asked to place each one of their administrators (so defined) into a position category defined by C.U.P.A. if possible. Several institutions found that certain positions could not be accommodated by any C.U.P.A. category. In those cases respondents were asked to list the uncategorized positions and corresponding salaries separately.

Methodology for Analysis

The methodology adopted for the analysis can best be illustrated by using an actual example (see Table 1). In this case study, 29 out of 37 administrators could be reasonably placed into one of the C.U.P.A. survey categories. Of these, 27 positions were identified for which C.U.P.A. data from the peer group survey participants (N = 13 out of 25) contained at least 5 average salaries. These positions are simply identified by an arbitrary number in the following table. The column labelled "Peer 60th Percentile" is given as a basis of comparison with the target salary for instructors using the benchmark peer group system. The State Council method of determining a "percentile" target is given by the formula:

$$\text{Target} = \text{Peer Mean} + .27 * \text{Peer S.D.}$$

where the weight (.27) is the approximate Z-value found in a standard statistical table of normal curve areas to correspond to the mean plus 10 percent, i.e. 60 percent of the total area. (Recognizing that this convention represents a departure from the standard use of the term "percentile"--but for consistency with existing state use of the terminology--such usage of the term will hereafter appear in quotes in this paper.)

TABLE 1

A Case Study Example Showing Institutional Mean

Salaries by Position and Corresponding Peer Group Statistics

POSITION NO.	FREQ.	INST. MEAN	PEER GROUP MEAN	PEER GROUP S.D.	PEER GROUP 60TH PERCENTILE
1	1	46000	42957	8975	45380
2	1	70000	69637	9550	72216
3	1	52600	45605	11204	48630
4	1	32200	34150	12184	37440
5	1	29200	30776	11526	33888
6	1	31100	26156	6495	27910
7	1	58400	59093	12637	62505
8	1	37800	48446	8522	50747
9	1	54300	57282	10289	60060
10	1	64000	66974	8555	69284
11	1	42500	44318	4539	45557
12	1	53430	47512	11478	50611
13	1	47500	42878	9019	45313
14	1	66000	58578	11064	61565
15	1	31000	35652	7556	37692
16	1	29000	27436	2622	28144
17	1	64000	55540	10283	58316
18	1	47775	50498	9436	53046
19	1	29135	32421	6759	34246
20	1	26925	30870	5304	32302
21	1	39725	39377	6368	41096
22	1	33675	31669	6481	33419
23	1	37900	38683	8247	40910
24	1	30000	30124	11192	33146
25	1	34225	33456	7548	35494
26	1	38325	37404	9447	39955
27	1	38000	43553	10379	46355
COLUMN MEANS:		43138	43001	8802	45379

Now consider Table 2, which generalizes the table in the specific example given above. Note that the right column is for salaries that are set at (some unspecified) multiplier, k, standard deviations above the peer mean rather than at k = 0.27, which, consistent with State Council methodology for instructional faculty salaries, is the prescribed multiplier used in the example given above. This prescribed multiplier would be used to determine a target level for mean salaries. One way of mathematically achieving this target level, which is totally unacceptable as a practical matter, would be to impose the "60th percentile" on each position in the table. However, since this solution cannot be tried, a method must be found to estimate and thereafter monitor the actual position of the institution relative to the peer group. Accordingly, the purpose of the following table and the calculations which it makes possible is to answer the question, Where does the institution stand in the aggregate among its peers?

TABLE 2

Generalized Table of Given Institution and Peer Group Data

With Calculated Rather than Prescribed Aggregate Percentile

POSITION NO.	FREQ.	INST. MEAN	PEER GROUP MEAN	PEER GROUP S.D.	PEER MEAN PLUS k S.D.'s
1	f1	m1	p1	s1	p1 + k*s1
2	f2	m2	p2	s2	p2 + k*s2
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
n	fn	mn	pn	sn	pn + k*sn
	F	M	P	S	T
COLUMNS:	(SUM)	(----------WEIGHTED MEANS----------)			

By allowing the value of k in the right hand column to vary, it is possible to determine a particular value of k which has the desired property. To rephrase the goal, what is required is to find a value of k such that the weighted mean of peer group salaries in the right hand column (= T) is equal to the empirical mean of the Virginia institution mean salaries for each position (= M). When the value of k having that desired property is found, as will be seen below a corresponding "percentile" can be found (e.g., 24th). With this information we will be in a position to state that the aggregate appropriation for the Virginia institution's positions is sufficient to support each of the positions at the (let's say, using our example) 24th percentile of salaries for the corresponding positions at the Virginia institution's peer group institutions.

As thus stated, determining the desired k becomes a routine matter of solving a simple algebraic equation to determine the value of k for which M = T.

Note that in the above table:

F = f1 + f2 + ... + fn

M = (f1*m1 + f2*m2 + ... fn*mn)/F

P = (f1*p1 + f2*p2 + ... fn*pn)/F

S = (f1*s1 + f2*s2 + ... fn*sn)/F

T = P + k*S

To find the value ofk for which M = T (again, to determine how many peer standard deviations above or below its peer mean each salary in the

right column must be placed in order to have the resulting weighted mean in the right column equal the empirical mean appropriation for administrators in these positions at the Virginia institution), we solve the equation:

$$M = P + k*S$$

to obtain:

$$k = (M - P)/S$$

In the example in Table 1, **k** = 0.015 standard deviations above the peer mean. By applying State Council conventions at this point, a ready translation to "percentile" equivalence is possible. This process merely involves working in the reverse direction from that in which a prescribed "percentile" (60th) dictates a **k**-value of approximately .27. From a standard table of normal curve areas, **k** is read as a **Z**-value and the corresponding normal curve area of .0060 is located. Since the **Z**-value is positive, the area under the normal curve is .50 + .0060, or approximately .51. Thus, the 51st "percentile" is the outcome.

Results and Interpretations

Table 3 provides a summary of results from the eight institutions participating in the present study:

TABLE 3

K-Values and Percentiles for Eight

Participating Virginia Institutions

INSTITUTION	K-VALUE	"PERCENTILE"
A	-0.293	38
B	-0.066	47
C	-0.050	48
D	-0.008	50
E	+0.015	51
F	+0.377	65
G	+0.678	75

Results for the eight participating institutions ranged from k-values of -.293 to +.678. The corresponding "percentiles" were between 38 and 75.

For the first institution (Institution A) the table reveals that if the salary of each reported administrator position at this institution were set at the 38th "percentile" of salaries for the corresponding position at its peer institutions, then the resulting mean salary for all such positions at this institution would be identical to the institution's actual mean salary for such positions. Furthermore, if the institution's teaching faculty have been demonstrated to be at or above the 60th "percentile" in terms of instructional faculty salaries relative to the same peer group (i.e., in the aggregate have reached the prescribed goal), then these data would suggest a situation of relative inequity within the institution from the administrators' standpoint. If further monitoring of the situation by means of similar annual studies

should produce evidence that the gap is widening, the conclusion of relative inequity would be strengthened. Different results would of course dictate correspondingly different interpretations.

The last institution in the table can be similarly interpreted to suggest a situation of relative high standing of the administrators' salaries at this institution. If the salary of each reported administrator position at this institution were set at the 75th "percentile" of salaries for the corresponding position at the peer institutions, then the resulting mean salary for all such positions would be identical to the institution's actual mean salary for these positions. Given the target level of the 60th "percentile" for instructional faculty at this institution as at others in the sample, it is unlikely that administrators at Institution G are currently even slightly disadvantaged relative to their teaching colleagues.

The remaining six institutions' results should be interpreted in a manner somewhere in between that given above for Institution A and Institution G.

Implications

The primary objective of this paper was to test whether the question stated above--i.e. "Where does a given Virginia institution stand in the aggregate as regards administrators' salaries among institutions which have been selected for their similarity to the Virginia institution?"--is amenable to solution. This paper has demonstrated the application of a methodology which renders the problem tractable. Using conventions which are already being applied in Virginia to instructional faculty salaries,

along with peer groups also selected for the same purpose, the methodology described above results in an easily analyzed and interpreted set of data. Furthermore, the use of these data over several years offers the promise of monitoring the relative parity (or disparity) of aggregate instructional faculty and administrator salaries.

It is significant to note that the methodology employs data pertaining to individual position salaries solely to construct a profile (distribution) of administrative positions that is identical to that of the Virginia institution, but that, having done so, its outcome deals solely with aggregate salaries.

In this connection, it should be stressed that the issue being addressed in this paper pertains to equity only on the institution-wide level. That is, the question, "Are the respective Virginia institutions, as judged relative to carefully constructed peer groups, receiving reasonably equitable appropriations for their administrative salaries?" can be answered in a consistent and objective manner by the methodology presented here. The application to statewide decision-making would depend on the availability to Virginia authorities of results for all of senior public institutions similar to the outcomes presented in Table 3. Equipped with such results, state authorities would be able to affirm with a high level of confidence, for example, that Institution A (38th "percentile") is receiving a less equitable allocation than Institution G (75th "percentile"). However, the question thus raised and answered can have no bearing on the legitimate, but irrelevant in this context, issue of whether individual positions are equitably funded relative to other

positions within individual institutions. For example, a particular librarian at Institution A may be considered underpaid or overpaid compared with Institution A colleagues, and similarly another librarian at Institution G; but the status of these institutions' administrators in the aggregate (38th versus 75th "percentiles") is a very different matter from the status of particular individuals at these institutions. In short, the total size of the allocation to the institution does not determine whether it has been or will be reasonably or properly divided within the institution.

The above distinction between the institution-wide (aggregate) and intra-institutional contexts should clarify that the multitude of variables that go into determining an equitable salary for an administrator--merit, seniority, budget responsibility, etc.--will have no part in the analysis conducted here. Where the interest clearly is in aggregate salaries, not individual position salaries,[6] such variables have no bearing on the issue at hand. As in virtually any statistical procedure, individual data points are subject to variations that may be considered random error from the aggregate standpoint, as long as no systematic bias can be demonstrated.[7]

Some of the best potential applications of this procedure may depend on patient, long-term use. For example, an institution might repeat similar analyses over several years to establish trends which document whether comparative inequities are being redressed, or equities are being preserved. Such an application would not depend on demonstrating results for more than a single institution. As already suggested, it would be

particularly useful to have results from analogous systems, one for administrators and one for instructional faculty, and thus be able to observe relative aggregate shifts over time. So far there has been relatively limited experience of this application. However, the experience reported here of using the C.U.P.A. database suggests a relatively inexpensive, straightforward procedure with clear potential benefits.

FOOTNOTES

[1]Paper presented at the 30th Annual Forum of the Association for Institutional Research, Louisville, Kentucky, May 15, 1990.

[2]The universe from which FASTCLUS generates the comparable cluster of institutions is not the same for all the senior public-supported institutions. A minimum of stratification is imposed upon the process so that, for example, research funding in excess of a given dollar amount is a criterion for inclusion within the universe from which comparable institutions are selected in the application of FASTCLUS to several Virginia institutions.

[3]In Virginia, most academically-credentialed college and university administrators at state-supported institutions are identified in two categories termed "administrative faculty" and "professional faculty." The official definitions of these two categories are as follows:

--Administrative Faculty - Administrative faculty require the performance of work directly related to the management of the educational and general activities of the College. Incumbents in these positions exercise discretion and independent judgement and generally direct the work of others.

--Professional Faculty - Professional faculty require advanced learning and experience acquired by prolonged formal instruction and/or specialized work experience. (This category is normally limited to librarians, counselors, coaches, lawyers, physicians, dentists, veterinarians, and other professional positions serving education,

research, athletic, medical, student affairs, and development functions or activities.)

For purposes of this study the term "administrators" refers to both administrative and professional faculty and to no other category of employee.

[4]The limitation of the C.U.P.A. data to positions for which at least five peers were represented was imposed by C.U.P.A., the primary motive being to assure the confidentiality of data not merely by the anonymity of responses but by embedding each data point among a number of other data points.

[5]In any procedure, such as that proposed in this paper, in which a single numerical result will have important consequences for the institution, it is essential that the result be certifiably correct. The study reported here also provided useful experience which suggests several checks for accuracy:

(1) To insure that peers' data are correctly entered into the database from which computations will be made, independent calculations of the mean salary, for each position at each institution, should be made. All such independent calculations of means must agree before k (or any other statistic) is determined; otherwise the result cannot be certified as correct.

(2) It may be useful to determine percentile ranks (by standard statistical definition) of salaries for each position at the target institution relative to the peers' salaries for corresponding positions. Experience suggests that the mean of those percentiles will correspond

reasonably well with the aggregate calculated "percentile" found by the procedures discussed in this paper. If this agreement is not found, k may have been calculated incorrectly. However, this informal procedure should be used solely as a check on accuracy, and never as a substitute for a more defensible computation of the aggregate "percentile."

(3) An extremely useful check on the internal consistency of results is as follows. (a) Determine the mean salary (M in Table 2) for the target institution (comprising only those positions in the database, i.e. those with corresponding C.U.P.A. data). (b) For each position, calculate a salary which is k peer standard deviations from the target institution's mean for that position. (c) Compute the weighted mean (T in Table 2) of the set of salaries determined according to (b); i.e., weight each salary figure by the number of position occupants at the target institution and divide the sum of all such salaries by the total number occupying any position at the institution (F in Table 2). (d) The mean at the target institution found in (a) must equal the mean calculated in (c), because of the requirement M = T (p.12).

[6]The authors would suggest that the C.U.P.A. database can be profitably consulted for data that is relevant to the second type of equity consideration, i.e. equitable internal distribution of dollars allocated for administrative salaries. While a detailed discussion of this point is beyond the scope of this paper, it is nonetheless relevant to know what salaries a given administrator's colleagues in similar positions, at similar institutions, have received. Such information obviously must be judiciously and cautiously used, but it

need not be dismissed solely because the application is difficult.

[7] One possible bias is suggested by the fact that several institutions found that some of their positions had no fair C.U.P.A. equivalents in the judgment of the survey respondents. It may be that the non-matchable positions tend to be either lower-level or higher level in terms of salaries at some institutions. However, this possibility has not been demonstrated.

REFERENCES

The FASTCLUS Procedure. Chapter 18 of SAS User's Guide: Statistics Version 5 Edition, 377-401. SAS Institute, Inc., Cary, N.C., 1985.

ERRATUM

Results for one institution that should have appeared in Table 3 were inadvertently left out of the version of this paper that was submitted. The result was a K-value of +.349 and a corresponding "percentile" of 64.